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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,837	10/15/2003	Wook-Yeon Hwang	1293.1927	9855

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EXAMINER	
LAMB, CHRISTOPHER RAY	
ART UNIT	**PAPER NUMBER**
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,837	HWANG ET AL.	
	Examiner	Art Unit	
	Christopher R. Lamb	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,8-12,19-21 and 25-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-12,19-21 and 25-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 20th, 2007 has been entered.

Claim Objections

2. Claims 1 and 12 are objected to because of the following informalities: in claim 1, line 6, "effected" should be "affected." This is also true in line 7 of claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 8-10, 12, 19, 25, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe (US 5,872,763) in view of Shoji et al. (WO 02/11131; US 2004/0022166 is relied upon as a translation; hereafter Shoji & Akagi), and further in view of Shoji et al. (US 6,157,609; hereafter Shoji & Yawata).

Regarding claim 1:

Osakabe discloses:

A method of optimizing recording conditions of an optical recording medium (column 2, lines 10-30), comprising:

setting standard powers, including write, erase and bias powers, for test recording and recording a test write pattern in a track of the optical recording medium (column 5, lines 5-30); and

checking a quality of a radio frequency signal reproduced from the track in which the write pattern is recorded to determine optimum powers, including optimum write, eras and bias powers for optimized recording conditions (column 5, lines 5-30),

Osakabe does not disclose:

(A) recording a test write pattern in a plurality of tracks; where the quality of the reproduced radio frequency signal is effected by writing in adjacent tracks;

(B) wherein write pattern elements of the write pattern are optimized using at least one of a magnitude, an asymmetry value, and a jitter value of the radio frequency signal.

Regarding (A):

Shoji & Akagi discloses that a test write pattern should be written in a plurality of tracks, where the quality of the reproduced radio frequency signal is effected by writing in adjacent tracks (paragraphs 103-105).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Osakabe recording a test pattern in a plurality of tracks;

where the quality of the reproduced radio frequency signal is effected by writing in adjacent tracks.

The motivation would have been to have more precise power calibration (Shoji & Akagi paragraph 103).

Regarding (B):

Shoji & Yawata discloses wherein write pattern elements of the write pattern are optimized using at least one of a magnitude, an asymmetry value, and a jitter value of the radio frequency signal (column 19, lines 19-30). Shoji & Yawata discloses that this achieves optimized recording (column 2, lines 49-55).

It would have been obvious to one of ordinary skill at the time of the invention to include in Osakabe in view of Shoji & Akagi wherein write pattern elements of the write pattern are optimized using at least one of a magnitude, an asymmetry value, and a jitter value of the radio frequency signal, as taught by Shoji & Yawata.

The motivation would have been to achieve optimized recording.

Regarding claim 2:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, wherein the test write pattern comprises a combination of marks of two or more different lengths and a space (this is taught in Shoji & Yawata: for example, column 14, lines 15-45).

Regarding claim 3:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, the test write pattern comprises a first mark of length T, and a second mark of length NT

which is longer than the first mark (this is taught by Shoji & Yawata: for example, column 14, lines 15-45) and in which power is saturated due to the formation of the marks (this is true of, for example, the 11T mark disclosed by Shoji & Yawata), and a space, and wherein T is a cycle of a recording and/or reproducing clock and N is an integer.

Regarding claim 8:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, the optimum powers, including the optimum write, erase and bias powers, are checked using the magnitude of the radio frequency signal (Osakabe column 4, lines 15-25).

Regarding claim 9:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, the standard powers, including the write, erase and bias powers, are adjusted respectively until the optimum powers are obtained, using the magnitude of the radio frequency signal (Osakabe column 6).

Regarding claim 10:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, the checking further comprises optimizing write pattern elements of the write pattern using the asymmetry value of the radio frequency signal taught by Shoji & Yawata as discussed above).

Regarding claim 12:

All elements positively recited have been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 19:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, the magnitude of the radio frequency signal is determined to be a peak-to-peak value of a radio frequency signal for a mark of length T of the test write pattern in which a power is saturated due to the formation of marks (Osakabe column 4, lines 15-50).

Regarding claims 25 and 27:

All elements positively recited have been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 28:

In Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, when the asymmetry value of the radio frequency signal is at a minimum, a write pattern element indicating a shift amount of a starting edge of a first pulse is determined (Shoji & Yawata: column 18, line 65 to column 19, line 30).

5. Claims 11 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata as applied to the claims above, and further in view of Furumiya (US 6,791,926).

Regarding claim 11:

Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, discloses a method of optimizing recording conditions as discussed above.

Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, does not disclose optimizing write pattern elements of the write pattern using the jitter value of the radio frequency signal.

Furumiya discloses optimizing write pattern elements of the write pattern using the jitter value of the radio frequency signal (column 2, line 55 to column 3, line 6). Furiyama discloses that this reduces the effect of variation (column 2, lines 30-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, optimizing write pattern elements of the write pattern using the jitter value of the radio frequency signal, as taught by Furumiya.

The motivation would have been to reduce the effect of variation, as taught by Furumiya.

Regarding claim 29:

This is similar to claim 11 and similarly rejected.

Regarding claim 30:

Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, and further in view of Furumiya, when the jitter value of the radio frequency signal is at a minimum, a write pattern element indicating a width of the first pulse is determined (this is part of the teaching of Furumiya: see, for example, Fig. 3, for pattern elements to be adjusted; that the element with the minimum jitter is picked is repeated throughout Furumiya: for example, column 11, lines 45-60).

Regarding claim 31:

Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, and further in view of Furumiya, when the jitter value of the radio frequency signal is at a minimum, a write pattern element indicating a width of multi-pulses is determined (this is

similar to claim 30: Furumiya Fig. 3 shows that the width of multi-pulses is a parameter that can be adjusted).

6. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, as applied to claim 12 above, and further in view of Ohara et al. (US 5,140,580).

Regarding claim 20:

Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, discloses a method as discussed above.

Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, discloses wherein the determining comprises:

reproducing the test write pattern recording in a middle track of the plurality of tracks effected by writing on adjacent tracks to output a radio frequency signal (reproducing the test pattern is taught by Osakabe as discussed above; that it is the middle track of the plurality of tracks is taught by Shoji & Akagi as discussed above); and

fixing two of the standard write, bias, and erase powers and varying the other one of the standard write, bias, and erase powers within a range to determine the optimum write, bias, and erase powers (Osakabe column 6).

Osakabe in view of Shoji, & Akagi, and further in view of Shoji & Yawata, does not disclose:

determining the optimum powers when the magnitude of the radio frequency signal is at a maximum.

Ohara discloses that an optimum power should be determined when the magnitude of the radio frequency signal is at a maximum (column 1, lines 5-30).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Osakabe in view of Shoji & Akagi, and further in view of Shoji & Yawata, determining the optimum powers when the magnitude of the radio frequency signal is at a maximum as taught by Ohara.

The rationale is as follows:

Osakabe discloses three alternate ways to determine the optimum power. Ohara discloses another method. Since Osakabe already shows that there are many possible ways to determine the power, and Ohara's method is old and well understood (note that Ohara is describing a 1984 Japanese pattern in this section), one of ordinary skill would certainly be able to combine these two teachings with predictable results.

Regarding claim 21:

All elements positively recited have already been discussed with regards to claim 20. No further elaboration is necessary.

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osakabe in view of Shoji, & Akagi, and further in view of Shoji & Yawata, and further in view of Ohara, and further in view of Tsukamoto (US 2002/0141316).

Osakabe in view of Shoji, & Akagi, and further in view of Shoji & Yawata, discloses a method of setting optimum powers as discussed above.

Osakabe in view of Shoji, & Akagi, and further in view of Shoji & Yawata, does not disclose wherein, when the magnitude of the radio frequency signal is a maximum

amplitude, a write pattern element indicating a period of time for which a cooling pulse lasts is determined.

Tsukamoto discloses determining a write pattern element indicating a period of time for which a cooling pulse lasts (paragraph 125).

Ohara discloses determining optimum write pattern parameters when the magnitude of the radio frequency signal is a maximum amplitude (column 1, lines 5-30).

It would have been obvious to one of ordinary skill in the art to modify Osakabe in view of Shoji, & Akagi, and further in view of Shoji & Yawata, to include determining a write pattern element indicating a period of time for which a cooling pulse lasts, as taught by Tsukamoto, when the magnitude of the radio frequency signal is a maximum amplitude, as taught by Ohara.

The rationale is as follows:

Tsukamoto discloses that determining a period of time for which a cooling pulse lasts results reduces the deviation from the target levels (paragraph 103).

Ohara discloses that a maximum amplitude indicates the best signal quality (column 1, lines 5-30).

Therefore it would have been obvious that a cooling pulse length that has a maximum amplitude is the cooling pulse length with the best signal quality.

Response to Arguments

8. Applicant's arguments with respect to claims 1-3, 8-12, 19-21, and 25-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 8/31/07

/William R. Korzuch/

SPE, Art Unit 2627